



238722



# State of New Jersey

## DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF  
SM, GAME AND WILDLIFE  
JUSSELL A. COOKINGHAM  
DIRECTOR

July 19, 1982

PLEASE REPLY TO:  
CN 400  
TRENTON, NEW JERSEY 08625

Johnathan Hess  
Environmental Technician  
Solide Waste Administration  
Niter Task Force  
120 Rt. 156  
Yardville, NJ 08620

RE: Comb Landfill South,  
Parker Road, Chester Township

Dear Mr. Hess:

Per our conversation on July 17, 1982, please be advised that the project area is within the range of the following species listed as endangered (E) or threatened (T) in the state.

Our records do not show any confirmed sightings for any of these species in the Parker Road area.

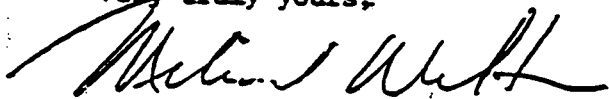
1. Bog Turtle (E) occurs in open sphagnum bogs, swamps and marshy meadows which have clear, slow-moving streams with soft muddy bottoms. Common vegetation in bog turtle habitat includes sedges, skunk cabbage, cattail, jewelweed and smartweed.
2. Wood turtle (T) occurs in hardwood forests. The wood turtle needs clean streams in or adjacent to wet meadows and farmland.
3. Long-tailed Salamander (T) lay their eggs in clear ponds or slow streams. The terrestrial adults live under logs in the vicinity of cool streams and feeds on insects and worms.
4. Red-shouldered hawk (T) breeds in moist woodlands both in the northern section and in the coastal plain. They generally nest under the forest canopy, placing the nest in the first crotch of a hardwood. Small mammals, amphibians, reptiles, and some small birds are usually taken by hunting from a favorite perch, but few hawks winter within the State.
5. Bobolink (T) nest on the ground in uncut fields.

If habitat suitable for any of these species is located within the project area then that species may be expected to occur there. Should suitable habitat occur, we recommend that further surveys be conducted to determine if such species inhabit the project area.

I hope this information is helpful to you. I have enclosed an order form for the publication Endangered and Threatened Species of New Jersey. This book contains information on the habitat requirements, range, and distribution of our endangered and threatened species and would be a useful addition to your reference library.

If I can be of further assistance, please contact me.

Very truly yours,



Melinda Welton, Nongame Zoologist  
Endangered and Nongame Species Project

ml

Enclosure

Facility Name: Combe-fill South Landfill  
Location: Parker Rd, Chester, Morris Co, NJ  
EPA Region: II  
Person(s) in Charge of the Facility: Anthony Farro  
John Castner

Name of Reviewer: Richard Katz Date: 7/1/82

General Description of the Facility:

(For example: landfill, surface impoundment, pile; container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)

Inactive landfill which has been found by  
analysis to be releasing numerous hazardous  
substances to ground and surface water.  
Numerous residences in close proximity.  
NJ Dept of Environmental Protection issued  
several Administrative Orders culminating in  
closure order 9/8/81

Scores:  $S_M = 45.22$  ( $S_{gw} = 73.08$   $S_{sw} = 27.90$   $S_a = 0$  )

$S_{FE} =$

$S_{DC} =$

Figure 1

HRS COVER SHEET

| GROUND WATER ROUTE WORK SHEET   |  |             |        |            |                |  |
|---|--|-------------|--------|------------|----------------|--|
| Rating Factor   | Assigned Value<br>(Circle One)   | Multi-plier | Score  | Max. Score | Ref. (Section) |  |
| <b>1</b> Observed Release   | 0 <u>45</u>  | 1           | 45     | 45         | 3.1            |  |
| If observed release is given a score of 45, proceed to line <b>4</b> .<br>If observed release is given a score of 0, proceed to line <b>2</b> .       |  |             |        |            |                |  |
| <b>2</b> Route Characteristics  |  |             |        |            | 3.2            |  |
| Depth to Aquifer of Concern   | 0   1   2   3  | 2           |        | 6          |                |  |
| Net Precipitation   | 0   1   2   3  | 1           |        | 3          |                |  |
| Permeability of the Unsaturated Zone  | 0   1   2   3  | 1           |        | 3          |                |  |
| Physical State  | 0   1   2   3  | 1           |        | 3          |                |  |
| Total Route Characteristics Score   |  |             |        | 15         |                |  |
| <b>3</b> Containment  | 0   1   2   3  | 1           |        | 3          | 3.3            |  |
| <b>4</b> Waste Characteristics  |  |             |        |            | 3.4            |  |
| Toxicity/Persistence  | 0   3   6   9   12   15 <u>18</u>                                      | 1           | 18     | 18         |                |  |
| Hazardous Waste Quantity  | 0 <u>1</u> 2   3   4   5   6   7   8                                   | 1           | 1      | 8          |                |  |
| Total Waste Characteristics Score   |  |             | 19     | 26         |                |  |
| <b>5</b> Targets  |  |             |        |            | 3.5            |  |
| Ground Water Use  | 0   1   2 <u>3</u>   | 3           | 9      | 9          |                |  |
| Distance to Nearest Well/Population Served  | 0   4   6   8   10<br>12   16   18   20<br>24   30   32   35 <u>40</u> | 1           | 40     | 40         |                |  |
| Total Targets Score   |  |             | 49     | 49         |                |  |
| <b>6</b> If line <b>1</b> is 45, multiply <b>1</b> x <b>4</b> x <b>5</b><br>If line <b>1</b> is 0, multiply <b>2</b> x <b>3</b> x <b>4</b> x <b>5</b> |  |             | 41,895 | 57,330     |                |  |
| <b>7</b> Divide line <b>6</b> by 57,330 and multiply by 100 $S_{gw} = 73.08$  |  |             |        |            |                |  |

| SURFACE WATER ROUTE WORK SHEET  |  |                 |               |               |                   |  |
|---|--|-----------------|---------------|---------------|-------------------|--|
| Rating Factor   | Assigned Value<br>(Circle One)                     | Multi-<br>plier | Score         | Max.<br>Score | Ref.<br>(Section) |  |
| <b>1</b> Observed Release   | 0 <u>45</u>  | 1               | <u>45</u>     | 45            | 4.1               |  |
| If observed release is given a value of 45, proceed to line <b>4</b> .<br>If observed release is given a value of 0, proceed to line <b>2</b> .       |  |                 |               |               |                   |  |
| <b>2</b> Route Characteristics  |  |                 |               |               | 4.2               |  |
| Facility Slope and Intervening Terrain  | 0 1 2 3  | 1               |               | 3             |                   |  |
| 1-yr. 24-hr. Rainfall   | 0 1 2 3  | 1               |               | 3             |                   |  |
| Distance to Nearest Surface Water   | 0 1 2 3  | 2               |               | 6             |                   |  |
| Physical State  | 0 1 2 3  | 1               |               | 3             |                   |  |
| Total Route Characteristics Score   |  |                 |               | 15            |                   |  |
| <b>3</b> Containment  | 0 1 2 3  | 1               |               | 3             | 4.3               |  |
| <b>4</b> Waste Characteristics  |  |                 |               |               | 4.4               |  |
| Toxicity/Persistence  | 0 3 6 9 12 15 <u>18</u>                            | 1               | <u>18</u>     | 18            |                   |  |
| Hazardous Waste Quantity  | 0 <u>1</u> 2 3 4 5 6 7 8                           | 1               | <u>1</u>      | 8             |                   |  |
| Total Waste Characteristics Score   |  |                 | <u>19</u>     | 26            |                   |  |
| <b>5</b> Targets  |  |                 |               |               | 4.5               |  |
| Surface Water Use   | 0 1 2 <u>3</u>                                     | 3               | <u>9</u>      | 9             |                   |  |
| Distance to a Sensitive Environment   | 0 <u>1</u> 2 3                                     | 2               | <u>2</u>      | 6             |                   |  |
| Population Served/Distance to Water Intake Downstream   | 0 4 6 8 <u>10</u><br>12 16 18 20<br>24 30 32 35 40 | 1               | <u>10</u>     | 40            |                   |  |
| Total Targets Score   |  |                 | <u>21</u>     | 55            |                   |  |
| <b>6</b> If line <b>1</b> is 45, multiply <b>1</b> x <b>4</b> x <b>5</b><br>If line <b>1</b> is 0, multiply <b>2</b> x <b>3</b> x <b>4</b> x <b>5</b> |  |                 | <u>17,955</u> | 64,350        |                   |  |
| <b>7</b> Divide line <b>6</b> by 64,350 and multiply by 100 $S_{sw} = 27.90$  |  |                 |               |               |                   |  |

| AIR ROUTE WORK SHEET  |                                |             |       |            |                |  |
|---|--------------------------------|-------------|-------|------------|----------------|--|
| Rating Factor   | Assigned Value<br>(Circle One) | Multi-plier | Score | Max. Score | Ref. (Section) |  |
| <b>[1]</b> Observed Release   | <u>0</u> 45                    | 1           |       | 45         | 5.1            |  |
| Date and Location: <i>No data available</i>   |                                |             |       |            |                |  |
| Sampling Protocol:  |                                |             |       |            |                |  |
| If line <b>[1]</b> is 0, the S = 0. Enter on line <b>[5]</b> .<br>If line <b>[1]</b> is 45, then proceed to line <b>[2]</b> . |                                |             |       |            |                |  |
| <b>[2]</b> Waste Characteristics  |                                |             |       |            | 5.2            |  |
| Reactivity and Incompatibility  | 0 1 2 3                        | 1           |       | 3          |                |  |
| Toxicity  | 0 1 2 3                        | 3           |       | 9          |                |  |
| Hazardous Waste Quantity  | 0 1 2 3 4 5 6 7 8              | 1           |       | 8          |                |  |
| Total Waste Characteristics Score   |                                |             |       | 20         |                |  |
| <b>[3]</b> Targets  |                                |             |       |            | 5.3            |  |
| Population Within 4-Mile Radius   | 0 9 12 15 18<br>21 24 27 30    | 1           |       | 30         |                |  |
| Distance to Sensitive Environment   | 0 1 2 3                        | 2           |       | 6          |                |  |
| Land Use  | 0 1 2 3                        | 1           |       | 3          |                |  |
| Total Targets Score   |                                |             |       | 39         |                |  |
| <b>[4]</b> Multiply <b>[1]</b> x <b>[2]</b> x <b>[3]</b>  |                                |             |       |            | 35,100         |  |
| <b>[5]</b> Divide line <b>[4]</b> by 35,100 and multiply by 100 $S_a = 0$   |                                |             |       |            |                |  |

|  | s     | s <sup>2</sup>         |
|--|-------|------------------------|
| Groundwater Route Score (S <sub>gw</sub> )   | 73.08 | 5,340.69               |
| Surface Water Route Score (S <sub>sw</sub> ) | 27.90 | 778.41                 |
| Air Route Score (S <sub>a</sub> )            | 0     | 0                      |
| $S_{gw}^2 + S_{sw}^2 + S_a^2$                |       | 6,119.10               |
| $\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$         |       | 78.22                  |
| $\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73$  |       | S <sub>M</sub> = 45.22 |

WORKSHEET FOR COMPUTING S<sub>M</sub>

# FIRE AND EXPLOSION WORK SHEET

| Rating Factor   | Assigned Value<br>(Circle One) | Multi-<br>plier | Score | Max.<br>Score | Ref.<br>(Section) |
|---|--------------------------------|-----------------|-------|---------------|-------------------|
| <b>1</b> Containment  | 1                      3       | 1               |       | 3             | 7.1               |
| <b>2</b> Waste Characteristics  |                                |                 |       |               | 7.2               |
| Direct Evidence   | 0                      3       | 1               |       | 3             |                   |
| Ignitability  | 0 1 2 3                        | 1               |       | 3             |                   |
| Reactivity  | 0 1 2 3                        | 1               |       | 3             |                   |
| Incompatibility   | 0 1 2 3                        | 1               |       | 3             |                   |
| Hazardous Waste Quantity  | 0 1 2 3 4 5 6 7 8              | 1               |       | 8             |                   |
| Total Waste Characteristics Score                                     |                                |                 |       | 20            |                   |
| <b>3</b> Targets  |                                |                 |       |               | 7.3               |
| Distance to Nearest Population  | 0 1 2 3 4 5                    | 1               |       | 5             |                   |
| Distance to Nearest Building  | 0 1 2 3                        | 1               |       | 3             |                   |
| Distance to Sensitive Environment                                     | 0 1 2 3                        | 1               |       | 3             |                   |
| Land Use  | 0 1 2 3                        | 1               |       | 3             |                   |
| Population Within 2-Mile Radius                                       | 0 1 2 3 4 5                    | 1               |       | 5             |                   |
| Buildings Within 2-Mile Radius  | 0 1 2 3 4 5                    | 1               |       | 5             |                   |
| Total Targets Score   |                                |                 |       | 24            |                   |
| <b>4</b> Multiply <b>1</b> x <b>2</b> x <b>3</b>                      |                                |                 |       | 1,440         |                   |
| <b>5</b> Divide line <b>5</b> by 1,440 and multiply by 100      SFE = |                                |                 |       |               |                   |



| DIRECT CONTACT WORK SHEET   |                                |           |                 |       |               |                   |
|---|--------------------------------|-----------|-----------------|-------|---------------|-------------------|
| Rating Factor   | Assigned Value<br>(Circle One) |           | Multi-<br>plier | Score | Max.<br>Score | Ref.<br>(Section) |
| <input type="checkbox"/> 1 Observed Incident  | 0                              | 45        | 1               |       | 45            | 8.1               |
| If line <input type="checkbox"/> 1 is 45, proceed to line <input type="checkbox"/> 4<br>If line <input type="checkbox"/> 1 is 0, proceed to line <input type="checkbox"/> 2   |                                |           |                 |       |               |                   |
| <input type="checkbox"/> 2 Accessibility  | 0                              | 1 2 3     | 1               |       | 3             | 8.2               |
| <input type="checkbox"/> 3 Containment  | 0                              | 15        | 1               |       | 15            | 8.3               |
| <input type="checkbox"/> 4 Waste Characteristics<br>Toxicity  | 0                              | 1 2 3     | 5               |       | 15            | 8.4               |
| <input type="checkbox"/> 5 Targets  |                                |           |                 |       |               | 8.5               |
| Population Within a<br>1-Mile Radius  | 0                              | 1 2 3 4 5 | 4               |       | 20            |                   |
| Distance to a<br>Critical Habitat   | 0                              | 1 2 3     | 4               |       | 12            |                   |
| Total Targets Score   |                                |           |                 |       | 32            |                   |
| <input type="checkbox"/> 6 If line <input type="checkbox"/> 1 is 45, multiply <input type="checkbox"/> 1 x <input type="checkbox"/> 4 x <input type="checkbox"/> 5<br>If line <input type="checkbox"/> 1 is 0, multiply <input type="checkbox"/> 2 x <input type="checkbox"/> 3 x <input type="checkbox"/> 4 x <input type="checkbox"/> 5 |                                |           |                 |       | 21,600        |                   |
| <input type="checkbox"/> 7 Divide line <input type="checkbox"/> 6 by 21,600 and multiply by 100    SDC =  |                                |           |                 |       |               |                   |

DOCUMENTATION RECORDS  
FOR  
HAZARD RANKING SYSTEM

INSTRUCTIONS: The purpose of these records is to provide a convenient way to prepare an auditable record of the data and documentation used to apply the Hazard Ranking System to a given facility. As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference that will make the document used for a given data point easier to find. Include the location of the document and consider appending a copy of the relevant page(s) for ease in review.

FACILITY NAME: Combe-Fill Landfill South

LOCATION: Parker Rd, Chester, Morris Co., NJ

## GROUND WATER ROUTE

### 1 OBSERVED RELEASE

Contaminants detected (5 maximum):

Carbon Tetrachloride } chemical analysis done  
Tetrachloroethylene } by NJ Dept. of Health  
Heptane  
Trichloroethylene  
1,2 Dichloroethane

Rationale for attributing the contaminants to the facility:

Contaminants detected in on-site and down-gradient wells — no other potential source of pollution exists; same contaminants detected in leachate on site.

\* \* \*

### 2 ROUTE CHARACTERISTICS

#### Depth to Aquifer of Concern

Name/description of aquifers(s) of concern: -

Depth(s) from the ground surface to the highest seasonal level of the saturated zone [water table(s)] of the aquifer of concern:

Depth from the ground surface to the lowest point of waste disposal/storage:

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

Mean annual lake or seasonal evaporation (list months for seasonal):

Net precipitation (subtract the above figures):

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

Permeability associated with soil type:

Physical State

Physical state of substances at time of disposal (or at present time for generated gases):

\* \* \*

### 3 CONTAINMENT

#### Containment

Method(s) of waste or leachate containment evaluated:

Method with highest score:

### 4 WASTE CHARACTERISTICS

#### Toxicity and Persistence

Compound(s) evaluated:

Carbon Tetrachloride  
Tetrachloroethylene  
Trichloroethylene  
Heptane

chemical analyses done by  
NJ Dept of Health Labs -  
data in DWM, Trenton files.

Compound with highest score:

Carbon Tetrachloride (HRS User Manual)

#### Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

old landfill = no basis of estimating quantity directly  
is available.

scored as a "1" (see discussion below)

Basis of estimating and/or computing waste quantity:

Evidence of groundwater contamination. Based on p. 3 of  
"Supplemental Instructions for the Hazard Ranking  
System", Steve Caldwell, July 29, 1982.

\*\*\*

5 TARGETS

Ground Water Use

Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:

Potable - Precambrian Gneissic bedrock  
(interviews with homeowners; all aquifers linked  
by fracturing - see geological report, attached)

Distance to Nearest Well

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:

Several private wells located along Parker Road

(NJDEP on-site inspection)  
Nearest well owned by Mr. Manfredonia

Distance to above well or building:

\* 50 feet

Population Served by Ground Water Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:

\* Public supply wells belonging to Chester Twp,  
Chester Boro, Washington Twp, several schools  
and various commercial enterprises

Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre):

\* None

Total population served by ground water within a 3-mile radius:

\* 11,200

\* Info supplied by Frank Matteo, Morris County  
Health Officer

## SURFACE WATER ROUTE

### 1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

Carbon Tetrachloride  
Heptane  
Benzene  
Dibromochloromethane

(chemical analysis done  
by NJ Dept. of Health)

Rationale for attributing the contaminants to the facility:

Observed leachate streams entering Trout  
Brook

(Inspection reports filed at NJDEP Division of  
Water Management, Trenton)

### 2 ROUTE CHARACTERISTICS

#### Facility Slope and Intervening Terrain

Average slope of facility in percent: -

Name/description of nearest downslope surface water:

Average slope of terrain between facility and above-cited surface water body in percent:

Is the facility located either totally or partially in surface water?

Is the facility completely surrounded by area of higher elevation?

1-Year 24-Hour Rainfall in Inches

Distance to Nearest Downslope Surface Water

Physical State of Waste

\* \* \*

### 3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Method with highest score:



#### 4 WASTE CHARACTERISTICS

##### Toxicity and Persistence

Compound(s) evaluated

see p. 4

Compound with highest score:

Carbon Tetrachloride (HRS User Manual)

##### Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

Scored as a "1"  
(see p. 4)

Basis of estimating and/or computing waste quantity:

(see p. 4)

\* \* \*

#### 5 TARGETS

##### Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

Recreational - Trout Brook was trout maintenance area; adversely impacted by contaminants Hacklebarney State Park, Schooley's Mountain Park (Div. of Water Resources files)

Potable (Frank Matteo, Morris Co. Health Officer)

Is there tidal influence?

NO

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

None

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

~ 3000' to PEM + PFO (palustrine wetlands)  
(Nat'l Wetlands Inventory map, Chester quad,  
US Dept. of the Interior)

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:

None

Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

2 Intakes located along Trout Brook (one is 2000' from leachate entry point and the other is 2 miles downstream).

(Frank Matteo, County Health Officer)

Population of land area irrigated by above-cited intake(s) and  
conversion to population (1.5 people per acre):

Total population served:

8 people in two families  
(Frank Matteo, Co. H. O.)

Name/description of nearest of above water bodies:

Streams tributary to Trout Brook, former  
trout maintenance area

Distance to above-cited intakes, measured in stream miles.

2000' and 2 miles

1 OBSERVED RELEASE

Contaminants detected:

*No sampling performed*

Date and location of detection of contaminants

Methods used to detect the contaminants:

Rationale for attributing the contaminants to the site:

\* \* \*

2 WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

Most incompatible pair of compounds:

Toxicity

Most toxic compound:

Hazardous Waste Quantity

Total quantity of hazardous waste:

Basis of estimating and/or computing waste quantity:

\* \* \*

3 TARGETS

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi            0 to 1 mi            0 to 1/2 mi            0 to 1/4 mi

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

Distance to critical habitat of an endangered species, if 1 mile or less:

Land Use

Distance to commercial/industrial area, if 1 mile or less:

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

Distance to residential area, if 2 miles or less:

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

**MEMO**NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTIONTO John CastnerFROM Dan ToderDATE February 27, 1981SUBJECT Environmental Impact of Continuing Operations at Combe Fill South Chester Twp.  
Morris County #1407A**General Setting:**

The Combe Fill landfill is located in Chester Township, Morris County. The site lies within the Reading Province of the New Jersey Appalachian Highlands with large valleys and ridges trending northeast-southwest. The Chester Township area in the vicinity of the landfill is drained by the North Branch of the Raritan River and the Lamington River. There are several private dwellings and public buildings within  $\frac{1}{2}$  mile of the landfill property. The people in the area use groundwater obtained from wells located in Precambrian gneissic bedrock.

**Geology:**

The geology in the vicinity of the landfill consists of pre-Wisconsin glacial drift from 10-25 feet in thickness which is underlain by fractured, crystalline hornblende and amphibolite gneisses of Precambrian age. The first 3-5 feet of the bedrock is highly weathered and fractured. It is a common practice at this landfill to excavate some of the glacial overburden for use as cover material. In the past the operators have completely stripped off the overburden down to bedrock, in places, creating a potential environmental hazard.

**Surface Water:**

The site is drained by two branches of Trout Brook and Tanners Brook. The western branch of Trout Brook flows from north to south and is located approximately 75 feet west of the existing landfill (the stream runs through the middle of the property). Three small ponds are fed by this branch of Trout Brook; one of which

is a man-made pond located on the property used in the past for disposal of septic tank wastes. The second pond is located about 500 ft south of the southern boundary of the Combe-Fill property owned by Mr. Tingue and the third pond is 1500 ft downstream of Tingue's pond.

The eastern branch of Trout Brook begins 500-700 feet south & east of the existing landfill and flows under Parker road. Approximately 1200 feet south of Parker road the east and west branches of Trout Brook join. Trout Brook later drains into the Lamington River and the Lamington later drains into the North Branch of the Raritan River.

Tanners brook is another stream that drains the landfill property, however, the existing landfill is about 2500 feet from this stream at the present time. Tanner's Brook flows northeast and drains into the Lamington River, later, draining into the North Branch of the Raritan River.

#### Groundwater:

I have been informed by the county clerk and health officer of Chester Township that all people in the immediate area of the landfill are using private groundwater wells for their potable water supply. Wells on the average are about 150 ft deep and are drawing water from the fractures existing in the bedrock. However, some private wells are more shallow with some tapping the water stored in the glacial overburden.

The shallow groundwater flow would be locally affected by topography, depth to bedrock and local drainage from the existing landfill the shallow groundwater flow would most likely be west (toward the western tributary of Trout Brook) and south. Groundwater flow direction within the bedrock is difficult to determine since the water flows within a complex fracture system. This area is not considered a major area for groundwater recharge.



#### Conclusions and Recommendations:

If it is decided to continue and expand operations (into the woods on the west side of the existing landfill) without any environmental controls, there is no doubt that there will be a severe deleterious environmental impact on groundwaters and surface waters of the area.

The western tributary of Trout Brook which runs through the site will provide natural drainage for any leachate that is generated. Only a 50 foot buffer around the tributary is planned in the engineering design. Also, the area proposed to be filled west of the tributary of Trout Brook should be declared a wetland area. The soil survey report for Morris County designates this part of the area as having a seasonal high water table of zero depth. An on-site inspection confirms this statement. Both tributaries of Trout Brook show visual signs of leachate presently. Reddish liquid and turbid waters can easily be seen in the streams. Mr. Tingue lives immediately downstream from the landfill and reddish liquid can be seen in his lake and stream.

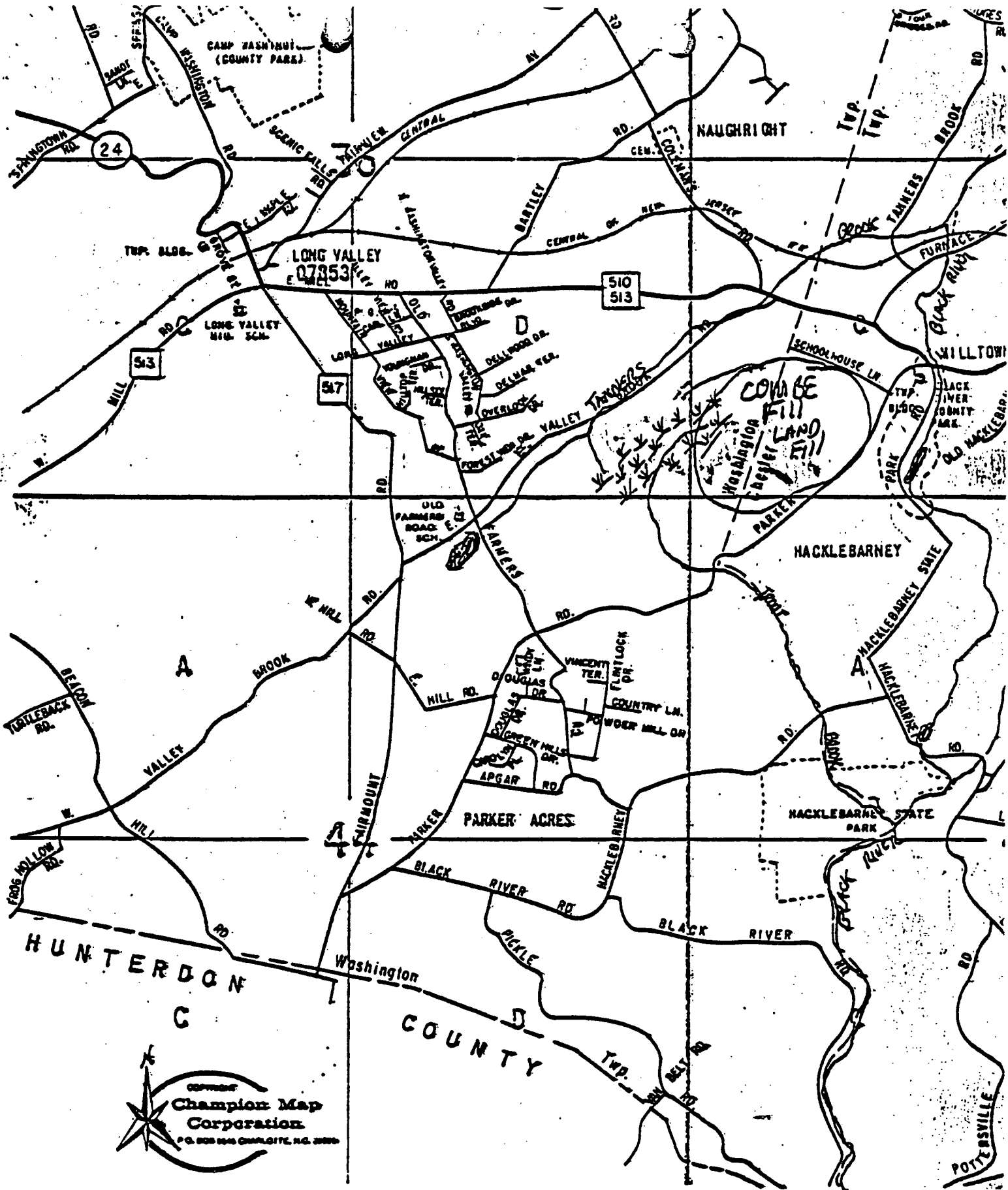
Tanner's Brook on the northwest corner of the site would also be a natural drainage area for the northwest portion of the site. There is a local drainage divide through the area to be filled. The area east of the divide would drain toward Trout Brook and the area west of the divide would drain toward Tanner's Brook. There have been many new houses built (using private wells) along Valley Brook road adjacent to Tanner's Brook.

#### Recommendations:

Using the remaining property for landfilling municipal waste at Combe-Fletcher South without doing serious harm to the environment will require many environmental controls and sound engineering practices. It is obvious that these controls will be very expensive to install. The following is a list of a few of the items needed to abate groundwater & surface water pollution.

1. Backfill with clean fill all areas to be filled so that waste is at least 5 feet above water.
2. A liner of clay, bentonite or PVC
3. A leachate collection system
4. Additional monitor wells to monitor groundwater in the bedrock and shall groundwater existing within the glacial overburden.
5. A sampling program for the streams that drain the site.
6. Gas evacuation system.

Even if these controls are installed, there is always some leakage from the most adequate liners and leachate collection systems. Some of the residents have less than 500 feet from the landfill property line and still may be affected. Also, noise of operation, blowing litter & odors may be a nuisance to near-by homeowners.



Combe fill south